

MEDICAL NEWS  
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## Smoking, Smog Effects Weighed

SAN FRANCISCO—Ten inhalations of cigarette smoke nearly double resistance to airflow into the lungs, and the respiratory effect lasts up to an hour after the last inhalation.

This finding was reported here at a conference on air pollution by Drs. Julius H. Comroe Jr. and J. A. Nadel of the University of California's Cardiovascular Institute.

The meeting also heard new evidence implicating atmospheric contamination in the etiology of bronchogenic carcinoma. Dr. David F. Eastcott of Wellington, N. Z., reported that the lung-cancer death rate among immigrants in his country from the British Isles was 30-75% higher than among native New Zealanders.

Drs. Comroe and Nadel, using the whole-body plethysmograph, evaluated the respiratory effects of smoking on 36 healthy subjects. The changes were found to be similar in smokers and nonsmokers and were reproducible. Smoking of pipes, cigars or cigarettes without inhaling had no effect on airway conductance. Inhalation of isoproterenol aerosol prevented or reversed the effect of cigarette smoke, they said.

In 22 cardiopulmonary patients with a wide range of in-



Dr. David F. Eastcott

tial airway conductance, cigarette smoking led to changes similar to those in the normal subjects.

Results were measured in terms of the ratio of airway conductance to thoracic gas volume. Ten inhalations of cigarette smoke brought about an average decrease of 50% in airway conductance which lasted about an hour.

Furthermore, reduced nicotine content, filtration, or removal of volatile smoke constituents, did not appreciably lessen the degree of respiratory impairment produced by the cigarettes.

These findings have led Drs. Comroe and Nadel to believe that submicronic particles irritate the smaller airways and cause them to constrict. Since these substances comprise the bulk of cigarette smoke, their removal would make smoking pointless, the researchers noted.

Dr. Eastcott's 10-year study involved the entire native-born population of New Zealand over age 35 (about 1.2 million) and

250,000 British-born men and women.

Beside being matched for age, the two groups included a similar proportion of smokers, and their smoking habits were about the same, the Wellington physician pointed out. A 30% higher lung cancer mortality was observed among the immigrants in the over-all study group.

But among those who did not immigrate to New Zealand until after age 30, the death rate from lung cancer was 75% higher than among the native-born, Dr. Eastcott said.

The New Zealand investigator was quick to point out that his study results do not rule out cigarette smoking in the pathogenesis of this disease. He feels, however, that "all the talk about smoking" may have overshadowed "ample evidence that smog and associated lung damage may account for at least half the lung cancer incidence."

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## Smoking & Cancer (Conf'd.)

After years of bombarding each other with flat denials and unflattering recriminations, the two sides in the smoking-and-lung-cancer controversy came close to sense-making agreement last week. Previously, evidence has usually been offered at one-sided meetings—either by those who indict heavy cigarette smoking as the principal cause or by those who put the blame for lung cancer's explosive increase on general atmospheric pollution. Last week authorities from both schools met in San Francisco under auspices of the University of California; the Tobacco Industry Research Committee put up \$28,000 toward expenses.

A New Zealand general practitioner, Dr. David F. Eastcott, might have been speaking for nearly everyone present when he declared: "The incidence of lung cancer is complexly determined and cannot be related solely or principally to a single factor. Tobacco smoking plays a part. Atmospheric pollution plays a part." Trouble is, he complained, that the evidence incriminating heavy cigarette smoking is "compact" (and hence easily grasped), while that indicting air pollution is diverse and various.

**Dark Satanic Mills.** In the Down-Under dominion's heavily industrial Hutt Valley (pop. 80,000), Dr. Eastcott found conditions for his inquiry as neatly laid out as in a laboratory experiment. By excluding Maoris, he dealt with people almost entirely of British extraction. Under socialized medicine, all got the same health care. Their smoking habits were essentially the same. All were living where the wind is strong and almost continuous, so that air pollution is negligible. But some had been born and raised there, while others were immigrants who had spent the first part of their lives in smoke-shrouded Britain.

The death rate from lung cancer among both men and women, Dr. Eastcott found, was 30% higher among the British-born, and 75% higher among those who emigrated to New Zealand after age 30. No such discrepancy appeared with cancer in other parts of the body. Moreover, though New Zealanders (native and immigrant alike) smoke even more heavily than stay-at-home Britons, the dominion's lung-cancer death rate is still lower than the old country's. Concluded Dr. Eastcott: "Something happens to the Britisher in his native environment that increases his susceptibility to lung cancer . . . I regard



Ken McLaughlin—San Francisco Chronicle

### NEW ZEALAND'S DR. EASTCOTT

At last, some clearing of the air.

this as the long shadow of those dark Satanic mills."

**Public & Personal.** Most surprising was the extent to which the University of Southern California's Dr. Paul Kotin agreed. Previously, Pathologist Kotin had minimized the importance of smoking, emphasized public air pollution. This time, though he piled up more scientific data to convict public air pollution, Dr. Kotin also plumped for multiple causation. He doubted, he said, that heavy cigarette smoking or "personal air pollution" plays a "primary role" in causing lung cancer, but he granted that it may be guilty as a fellow criminal. The researchers still differed in their theories of sequence: Dr. Eastcott thought British air pollution sets the stage for smoking to damage the lungs and perhaps lead to cancer, while Dr. Kotin thought smoking sets the stage for the air pollution villain.

Conference participants also moved to clear up two other seeming contradictions which have bedeviled the years-long research. Why is it that, with Americans smoking about as many cigarettes as Britons, and at least some U.S. cities having air pollution as bad as many of Britain's, the lung-cancer death rate is markedly higher in Britain than in the U.S.? One factor is obvious but too often overlooked, said London's Dr. Patrick Lawther: U.S. pollution is mainly industrial, whereas Britain's comes largely from the burning of soft (bituminous) coal in open grates. And the castle that is every Englishman's home discharges the heavy resulting soot into the air near lung level from low chimneys. As for the difference in lung-cancer death rates between men and women (which the tobacco industry maintains is far greater than the difference in their cigarette consumption), the American Cancer Society's Dr. E. Cuyler Hammond suggested that men are more exposed to industrial fumes and dusts.

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